

In re Patent Application of:

LENOBLE

Serial No. **10/714,440**

Filing Date: **NOVEMBER 14, 2003**

REMARKS

The Applicant would like to thank the Examiner for the thorough examination of the present application. Independent Claims 25 and 54 have been amended to more clearly define the present invention over the cited prior art references. In addition, dependent Claim 42 has been cancelled for claim consistency. The claim amendments and arguments supporting patentability of the claims are presented in detail below.

I. The Claims Are Patentable

The Examiner rejected independent Claims 25 and 57 over the Yu patent. The present invention, as recited in amended independent Claim 25, for example, is directed to a process for fabricating an integrated circuit comprising forming a gate on a silicon substrate, implanting dopants in the silicon substrate to form drain and source extensions therein, and amorphizing regions of the silicon substrate to obtain amorphous silicon regions adjacent the gate after implanting the dopants.

Independent Claim 25 has been amended to recite that the dopants for forming the drain and source extensions are implanted before the amorphizing is performed. Support in the specification may be found on page 4, paragraph 16, for example. The process further comprises forming drain and source regions in the respective drain and source extensions with a channel being defined therebetween. The drain and source regions are formed at a temperature below 800°C. Implanting the dopants for forming the drain and source extensions before the amorphizing, as well as forming the

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drain and source regions at a low temperature, allows the dopants to be kept in place. Thus, harmful diffusion is avoided.

Referring now to the Yu patent, the fabrication of a shallow doped junction using multiple implantations is disclosed. FIG. 4 shows the profile of three amorphizing implants **402**, **404** and **406** in various depths within the substrate **102** of FIG. 1. An annealing may be made at a temperature from about 550 to 700°. According to FIG. 6, an amorphous drain region **602** and an amorphous source region **604** are formed and activated to form a drain extension and a source extension, respectively. FIGS. 2 and 3, relating to the prior art, are directed to a single amorphizing implantation. In particular, the step of amorphizing is made after the step of implanting dopants.

In sharp contrast, independent Claim 25 has been amended to recite that the dopants are implanted in the silicon substrate to form the drain and source extensions before regions of the silicon substrate adjacent the gate are amorphized to obtain amorphous silicon regions. Since the amorphizing is made after the dopants have been implanted, the dopant profile may be better controlled.

Accordingly, it is submitted that amended independent Claim 25 is patentable over Yu. Amended independent Claim 57 is similar to amended independent Claim 25. Therefore, it is submitted that this claim is also patentable over Yu. In view of the patentability of the amended independent Claims 25 and 57, it is submitted that their dependent claims, which recite yet further

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distinguishing features of the invention, are also patentable.
These dependent claims require no further discussion herein.

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CONCLUSION

In view of the amendments to the claims and the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MS AMENDMENT, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, on this 14th day of July, 2005.

